UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,456	06/19/2001	Kenneth J. Hines	10488/12:1	2742

3528	7590	12/31/2003	**EXAMINER**	
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ART UNIT	PAPER NUMBER
2122	

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _19 June 2001_.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-11_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-11_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _19 June 2001_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All   b) ☐ Some * c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____.
   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

   a) ☐ The translation of the foreign language provisional application has been received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _3,6_.

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

1.   Claims 1-11 are pending and have been examined. The priority date considered for the

application is 23 June 2000.

Drawings

2.   Figures 3A and 3B should be designated by a legend such as --Prior Art-- because only

that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or

corrected drawings are required in reply to the Office action to avoid abandonment of the

application. The objection to the drawings will not be held in abeyance.

3.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they

include reference signs not mentioned in the description. See for example item 1118 of Fig. 11.

A proposed drawing correction, corrected drawings, or amendment to the specification to add the

reference sign(s) in the description, are required in reply to the Office action to avoid

abandonment of the application. The objection to the drawings will not be held in abeyance.

4.   The drawings are objected to because they include informal, handwritten labels (see for

example Fig. 39), and because they include reference signs enclosed in brackets (see for example

Fig. 43). A proposed drawing correction or corrected drawings are required in reply to the

Office action to avoid abandonment of the application. The objection to the drawings will not be

held in abeyance.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6.   Claims 1, 2, 8 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S.

Pat. No. 6,083,281 to Diec et al. (hereinafter Diec).

With respect to claim 1, Diec discloses a software system for debugging a distributed

software environment (see the abstract), the software system comprising:

(a) a primary processing element having a software program that generates a

corresponding event record in response to a selected event (see column 2, lines 39-53, which

shows a program element having software for generating trace data in response to events); and

(b) a communication channel that links the primary processing element to a debugging

host (see Fig. 1a and column 6, lines 20-43, which shows communication channels among the

nodes in a distributed network; see also Fig. 1b, which shows a log file manager 106 that serves

as a debugging host).

With respect to claim 2, Diec further discloses the limitation wherein the software

program comprises:

(a) at least two components (see Figs. 1b and 6, which both show a plurality of traceable

objects or components);

(b) a coordinator that manages control and data flow interactions between the

components (note that a coordinator is inherent to the operating system for managing control and

data flow interactions among processes and components; see also column 10, lines 25-37, which

shows a database for tracking the components managed by the coordinator);

(c) an interface between the coordinator and the component, the interface having a port

that exposes an event (see Fig. 7, which shows a communication interface 704 that exposes

tracing information in response to events generated by objects or components);

(d) a runtime system that collects the event record (see column 9, lines 48-59, which

shows a log file manager for collecting event records); and

(e) a primary runtime debugging architecture that receives the event record from the

runtime system and forwards the event record to the debugging host along the communication

channel (see Fig. 7, which shows a runtime architecture for communicating tracing information

and event records to the log file manager, which serves as a debugging host).

With respect to claim 8, Diec further discloses the limitation wherein the distributed

software environment implements a predetermined design model having an explicitly defined

event (see column 6, lines 13-19, which shows that the distributed software environment

implements an object-oriented design model), and the software program generates the event

record in response to an occurrence of the explicitly defined event (see column 2, lines 39-53,

which shows generating tracing data or event records in response to certain events).

With respect to claim 11, Diec further discloses the limitation wherein the software

program generates a token representative of a predetermined sequence of events (see column 3,

lines 34-67, which shows generating a message or token for tracing a sequence of events in a

chain of objects or components).

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diec, as

applied to claim 2 above, in view of U.S. Pat. No. 6,125,392 to Labatte et al. (hereinafter

Labatte).

With respect to claim 3, Diec further discloses the limitation wherein the primary runtime

debugging architecture comprises a time stamper to provide a time stamp to the event record

generated by the software program (see column 10, lines 14-17, which shows that the records

stored in the log file include a time stamp and other information related to an event).

Diec does not expressly disclose a causality stamper to provide an identification of a

cause of the event associated with the corresponding event record.

Labatte discloses the limitation above in terms of a runtime event log (see column 1, lines

54-61) that includes a causality stamp (see column 2, lines 60-67, which shows identifying

events based on the category or source of the events, such as events caused by memory errors),

along with a time stamp (see column 4, lines 55-59), in order to provide more accurate

information to a user diagnosing a computer system (see column 2, lines 38-42).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a causality stamp to the Diec system, as taught by Labatte, for the purpose of providing more accurate information to a user performing diagnostics in the Diec system.

With respect to claim 4, Diec further discloses the limitation wherein the primary runtime debugging architecture further comprises:

(a) a primary uplink component to enable communication between the primary processing element and the debugging host along the communication channel (see Fig. 1b, which shows a communication interface 114 for enabling communication between a processing node and the log file manager or debugging host); and

(a) a primary transfer component coupled to the uplink component to collect and transfer the event record from the primary processing element to the debugging host along the communication channel (see Fig. 7, which shows a communication interface 704 for transferring event records from processing nodes to the log file manager or debugging host).

With respect to claim 5, Diec further discloses the limitation wherein the software system further comprises:

(a) an intermediate processing element disposed along the communication channel between the primary processing element and the debugging host to enable communication with the debugging host (see column 11, lines 6-23, which shows a dispatcher module, i.e. an intermediate processing element, within the communication interface for enabling communication with the log file manager or debugging host); and

(b) the primary runtime debugging architecture further comprises a primary uplink component to enable communication between the primary processing element and the

intermediate processing element (see Fig. 1b, which shows a communication interface 114 for

enabling communication between processing nodes).

With respect to claim 6, Diec further discloses the limitation wherein the intermediate

processing element comprises:

(a) an intermediate uplink component to enable communication between the intermediate

processing element and the debugging host along the communication channel (see column 11,

lines 6-23, which shows a pre-dispatcher module for propagating messages, i.e. an intermediate

uplink component, within the communication interface for enabling communication with the log

file manager or debugging host); and

(b) an intermediate transfer component coupled to the intermediate uplink component to

collect and transfer the event record from the intermediate processing element to the debugging

host along the communication channel (see Fig. 7, which shows a communication interface 704

for transferring event records from processing nodes to the log file manager or debugging host).

With respect to claim 7, Diec does not expressly disclose the limitation wherein the

primary runtime debugging architecture further comprises a flash driver for interfacing with a

flash memory to facilitate collection of the event record from the primary processing element and

storage of the event record for subsequent transfer to a remote debugging host.

Diec does show storing event records in log files on a remote debugging host using the

file system of the operating system (see column 10, lines 9-12; see also column 6, lines 46-52,

which shows that the log file manager or debugging host is on a remote node relative to the

traceable objects or components).

Labatte discloses the limitation above in terms of storing the event log in flash memory
(see column 6, lines 42-44; note that a flash driver is inherently used to enable an interface with
the flash memory), so that the BIOS of a computer may log critical system events in nonvolatile
memory (see column 1, lines 13-18).

It would have been obvious to one of ordinary skill in the art at the time the invention
was made to modify the system of Diec by adding the flash driver taught by Labatte, for the
purpose of enabling the BIOS or operating system of a computer in the Diec system to log
critical system events in nonvolatile memory.

9.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Diec, as applied to
claim 1 above, in view of U.S. Pat. No. 6,539,501 to Edwards.

Diec does not expressly disclose the limitation wherein the distributed software
environment comprises an explicit event recording call, and the software program generates the
event record in response to an occurrence of the explicit event recording call.

Diec does show generating event records in response to tracing instructions (see Fig. 7).

Edwards discloses the limitation above in terms of explicit tracing methods, i.e. event
recording methods, which, when called, instruct the system to generate trace data or event
records (see column 3, lines 36-47 and 58-61).

It would have been obvious to one of ordinary skill in the art at the time the invention
was made to include the event recording methods taught by Edwards in the system of Diec, for
the purpose of enabling a developer to easily insert trace statements into source code (see
Edwards, column 3, lines 36-38).

10.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Diec, as applied

to claim 1 above, in view of U.S. Pat. No. 5,642,478 to Chen et al. (hereinafter Chen).

Diec further discloses the limitation wherein the distributed software environment

executes on a target hardware platform (see column 2, lines 39-53, which shows a computer

readable storage medium having software for monitoring events and generating trace data).

Diec does not expressly disclose the limitation wherein the target hardware platform

comprises a probe for monitoring a selected bus trace on the target hardware platform and for

generating an event record responsive to a predetermined activity on the bus trace.

Chen discloses the limitation above in terms of system for capturing event data,

implemented on a target hardware platform (see the abstract and Fig. 1), comprising capture

logic, i.e. a probe, for monitoring bus traces (see column 8, lines 1-5) and generating event

records in response to activity on the bus traces (see column 5, lines 41-56).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to add the bus trace probe taught by Chen to the system of Diec, for the purpose of

capturing all the event data needed for debugging in the Diec system without having to recreate

the problem (see Chen, column 5, lines 65-67, and column 6, line 1).

Conclusion

11.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. U.S. Pat. No. 5,794,046 to Meier et al. discloses a system for debugging distributed

applications. U.S. Pat. No. 6,347,374 to Drake et al. discloses a system for detecting and

recording events in a distributed environment.

12.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Michael J. Yigdall whose telephone number is (703) 305-0352.

The examiner can normally be reached on Monday through Friday from 8:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tuan Q. Dam can be reached on (703) 305-4552. The fax phone number for the

organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 305-3900.

/MY/   Michael J. Yigdall
                        Examiner
                        Art Unit 2122

mjy
December 22, 2003

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